UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/666,605 | 09/20/2000 | TOHRU DEN | 35.G2647 | 5370 |

5514 7590 09/24/2003

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

| EXAMINER | |
|---|---|
| HU, SHOUXIANG | |
| ART UNIT | PAPER NUMBER |
| 2811 | |

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/666,605 | DEN ET AL. | |
| | Examiner | Art Unit | |
| | Shouxiang Hu | 2811 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-4,8-15 and 19-45* is/are pending in the application.

4a) Of the above claim(s) *11,22,23 and 25-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-10,12-15,19-21 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Pending and Active Claims*

1. Claims 11, 22, 23, and 25-45 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention according to previous office action. Accordingly, claims 1-4, 8-15, and 19-45 are pending in this application; and claims 1-4, 8-10, 12-15, 19-21 and 24 remain active in this Office action.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 8-10, 12-15, 19-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP11-200090 ("JP'090"; of record) in view of Wegrowe et al. ("Wegrowe"; 6,172,902).

JP'090 discloses a structure (see Figs. 6(a), 7(a) and 7(b)), comprising an aluminum oxide layer (13) having a plurality of pores; a conductive layer (11); a material (15) other than aluminum oxide filling the pores; and a conductive path (16).

Although the structure shown in Figs. 6(a), 7(a) and 7(b) of JP'090 does not expressly disclose that the electrically conductive layer (11) can be patterned. However,

one of ordinary skill in the art would readily recognize that the electrically conductive layer needs to be patterned and arranged between non-conductive regions in order to form individual functional components in an integrated circuit, as evidenced in Wegrowe. Wegrowe discloses a structure having pores (Figs. 4 and 5B), comprising: a substrate (20); and a patterned electrically conductive layer (3b); a layer of aluminum oxide (2; see col. 6, lines 8-15) with pores therein; wherein the pores are disposed above the electrically conductive layer and a surface of the substrate where no electrically conductive layer is formed, as the aluminum oxide layer (2) is a pre-prepared porous aluminum oxide membrane layer (see col. 4, lines 14-20) full with densely formed pores (see 3, lines 38-40) and the conductive layer only underlies a portion of the porous membrane layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the structure of JP'090 with the electrically conductive layer being patterned into individual areas, so that individual functional components in an integrated circuit would be obtained.

Regarding claims 4 and 15, it is noted that one of ordinary skill in the art would readily recognize that the substrate can also be made of a conductive layer underlying an insulating layer (as evidenced in the prior art such as 6,194,255, see col. 3, lines 12-15).

Regarding claims 9, 10, 19-21 and 24, it is noted that, with the method forming the conductive or magnetic filling in both JP11-200090 and Wegrowe, only the pores

above the conductive layer would be filled with the conductive or magnetic filling material.

***Response to Arguments***

Applicant's arguments filed on 6/11/03 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, although JP'090 does not expressly disclose that the underlying conductive layer in Figs. 6(a), 7(a) and 7(b) can be patterned in order to form individual functional components, one of ordinary skill in the art would readily recognize that such electrically conductive layer needs to be patterned and arranged between non-conductive regions in order to form individual functional components in an integrated circuit, as evidenced in Wegrowe. Wegrowe discloses an integrated circuit formed of individually addressable memory components shown in Figs. 4 and 5B, comprising a layer of aluminum oxide with pores therein, wherein the pores are disposed above the patterned electrically conductive layer and a surface of the substrate where no electrically conductive layer is formed. Apparently,

Wegrowe manifests that one of ordinary skill in the art would readily recognize that the underlying conductive layer bottom layer such as the one in JP'090 needs to be patterned in order to form individually addressable components in an integrated circuit.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703)306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SH
September 17, 2003

Shouxiang Hu

SHOUXIANG HU
PRIMARY EXAMINER